U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899

Certificate Number: 89-032A2
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National Type Evaluation Program

Certificate of Conformance

for Weighing and Measuring Devices

For:

Bench Scale
Mechanical Dial and Levertronic
Models: 5110, 7011 and 1100 Series
n_{max}: 1,000
Capacity: See Page 2
Platform: 13-3/4" x 18-1/2"

Accuracy Class: III

Submitted by:

Cardinal/Detecto Scale Co.
P.O. Box 151
Webb City, MO 64870
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Contact: Wm. Terry James

Standard Features and Options

- Leveling legs with level bubble
- Tool operated zero
- Mechanical spring dial indicator (15" reading diameter)

Options: Levertronic capability (n_{max}: 2,000). Factory converted scales are identified as additional models on Page 2. Field converted scales retain the model numbers of the original scale and retrofit kit.

Additional Suffix(s)	Description
9	Adjustable wheeled stand
Q	Quick tare
PW	Tall column

Temperature Range: -10 to 40 °C (14 to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: April 8, 1992 Original signed by Chief, Office of Weights and Measures
Issue Date: August 21, 1992

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Cardinal/Detecto Scale Company
Bench Scale Mechanical Dial
Model: 5110, 7011, 1100 Series

Application: General purpose.

Additional Model Numbers:

Levertronic	Dial	Capacity	e_{min} Levertronic
5110* or 7011**	1100 DB	50 lb x 1 oz	0.02 lb
5110* or 7011**	1102 DE	100 lb x 2 oz	0.05 lb
5110* or 7011**	1102 EDX	100 lb x 0.1 lb	0.05 lb
5110* or 7011**	1105 DG	200 lb x 4 oz	0.1 lb
5110* or 7011**	1106 DK	300 lb x 8 oz	0.2 lb
		400 lb x 0.2 lb	0.2 lb
	1100 DBK	25 kg x 25 g	
	1102 EDK	50 kg x 50 g	
	1106 DKK	150 kg x 250 g	
	1105 DGK	100 kg x 100 g	

(* Reference Conversion Kit, Certificate of Conformance Number 90-111)
(** Reference Conversion Kit, Certificate of Conformance Number 90-110)

Identification: The identification label is located on the column for the dial scales and on the column and the digital weight indicator for the levertronic scales.

The load cell is identified only by manufacturer, model, capacity, and serial number. Additional required load cell information is on a serialized document to be supplied to the scale owner.

Sealing: The spring dial indicator can be sealed with pressure sensitive security seals.

Test Conditions: This Certificate supersedes Certificate No. 89-032A1 and is issued to include the factory converted levertronic versions and the model 7011 with the increased capacity. The original test conditions are repeated.

The Series 1100 scale was originally evaluated in August, 1990. The Model 1105 DG scale was resubmitted for compliance with influence factor, time dependence, discrimination, and marking requirements. The scale was tested over a temperature range of -10° C to 40 °C.

Additionally, the Model 7011, 400 lb. capacity was resubmitted. The emphasis of the evaluation was on device design and performance along with the increased capacity. A load of one-half capacity was applied over 103,000 times to the scale. The scale was tested for accuracy periodically during this time. In addition, the scale was tested over a temperature range of -10° to 40°C.

The results of the evaluations conducted on the conversion kits (Certificates of Conformance Numbers 90-110 and 90-111) and the 1105 DG and 7011 scales indicate these devices comply with applicable requirements.

Type Evaluation Criteria Used: National Institute of Standards and Technology, Handbook 44, 1991 Edition.

Tested By: Gary Castro, Steve Cook (CA)

Update Reviewed By: H. Oppermann, T. Grimes